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No. II.

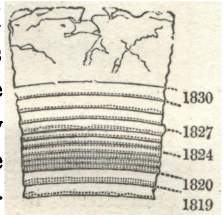
GROWTH OF TIMBER.

The Thanks of the Society were voted to Mr. J. Goss, of Okehampton, for his Specimens illustrative of the effects produced, by lopping trees, on the growth of Timber.

It is well known to vegetable physiologists of the present day, that timber, or the trunk of a tree, is composed of concentric layers, or rather cylinders, of wood, each cylinder being the produce of one year. It is likewise generally agreed, that the fibrous part of these cylinders is an aggregate of the fibres (or roots, as they may without much impropriety be called), which originate from the base of each leaf-bud, and descend to the ground, insinuating themselves between the inner bark and the outer sap-wood covering the surface of this latter. In many species of wood, each annual cylinder is evidently composed of an interior porous or tubular part, hooped in by an outer part of more compact texture, because containing fewer and smaller tubes. It is evident, therefore, and was long ago observed by M. Duhamel, that any natural circumstances which remarkably increase or diminish the number of leaf-buds in a tree, will occasion a correspondent modification in the thickness of the layer of wood produced by them. Artificial circumstances, such as lopping in autumn or early spring, diminish the number of leaf-buds, and would be expected to be followed by the deposition of a thinner layer of wood than usual. The investigation of the effect produced by lopping is the object of Mr. Goss's communication.

In January 1820, a neighbour of Mr. Goss's having some ash-pollards with fine tops, of about twelve years' growth, lopped off the heads of five of them. Last winter, 1830, he obtained permission to cut out a few chips from these, in order to ascertain the effects of so unsparing an excision. The accompanying diagram represents one of these specimens, and shews the rate at which the branch was growing in 1819 and 1820. The three succeeding very narrow segments shew the retardation that took place in the growth during the three years immediately following the lopping. After this time the annual deposits of wood began to increase, but so slowly that it was not till 1829 that the thickness of the year's ring equalled what had been the annual average growth of the tree previous to the lopping.

Fig. 1.



Another very remarkable fact is, that the porous or tubular part of each year's growth does not greatly vary; the deficiency, during the eight years after the lopping, falling chiefly on the fibrous part, in which the strength of the timber principally resides. The deposits in the years 1821, 2, and 3, were almost wholly of tubular wood; and therefore inordinate lopping, besides the retardation of growth which it occasions, diminishes the strength of timber produced under such circumstances.

Two of the specimens sent by Mr. Goss possess interest likewise in another point of view. They are oblique sections of two ten-year old branches that grew on the same ash tree, and nearly of equal size. From one of them, fig. 2, all the lateral sprays were cut off in the winter of 1819; and a year after, namely, at the end of 1820, both branches were separated from the tree. The unpruned

Fig. 5.

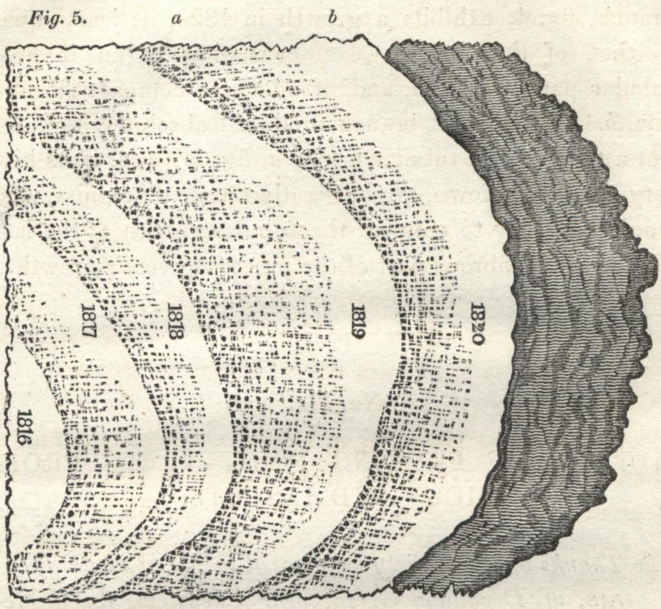
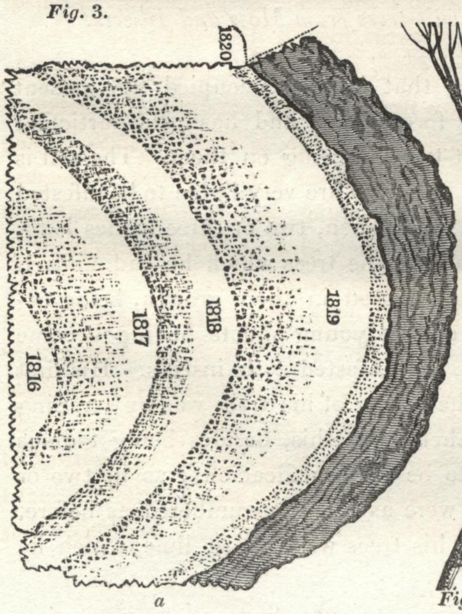


Fig. 3.



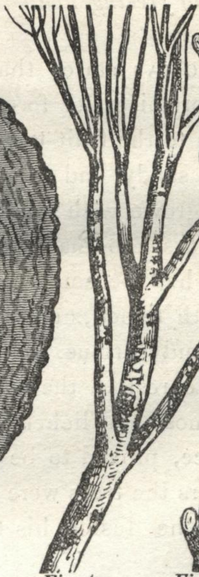


Fig. 4.

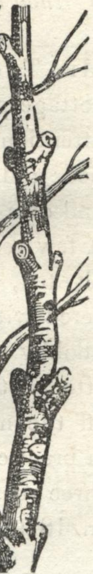


Fig. 2.

branch, fig. 4, exhibits a growth in 1820, at least equal to that of the former year, consisting of an interior tubular part, *a*, fig. 5, and of an outer compact fibrous one, *b*. The pruned branch produced absolutely nothing but a thin ring of tubular wood, *a*, fig. 3; and, if its history were not known, might greatly puzzle a botanist, who would be likely to connect the tubular growth of the last year with the fibrous part of the preceding year's growth.

No. III.

METHOD OF FREEING FRUIT-TREES FROM MOSS AND INSECTS.

The Thanks of the Society were voted to Mr. JAMES THOMAS, of Devandon Green, near Chepstow, for a Method of freeing Fruit-trees from Moss and Insects.

MR. THOMAS states that he has occupied his present cottage-premises for forty years, and has paid particular attention to the fruit-trees growing on them. The soil is poor and sandy, and the trees are very liable to be infested and overgrown with grey lichen, two or three inches long. A few years ago, many of the trees which he had himself planted, had become stunted in their growth, being covered with lichen, and the young shoots having become knobby and carious, and infested with insects. His first attempt to restore the vigour of his trees was by scraping off the moss and lichen; but this, besides being tedious in practice, proved to be very inefficacious; as in two or three years the trees were as much encumbered as before. In 1829, he dusted his trees with quick lime, which he